

TO: Mr. R. N. Thomson  
FROM: D. C. Watson  
SUBJECT: Determination of Moisture in TPM

DATE: June 28, 1966

Typical commercial cigarettes and a series of experimental cigarettes were analyzed for H<sub>2</sub>O in TPM. The average amount of H<sub>2</sub>O in TPM for all cigarettes analyzed is 10%. Tables I and II summarize the data obtained.

A plot of TPM vs. H<sub>2</sub>O in TPM demonstrates a generally linear relationship and is shown in Figure 1 for commercial cigarettes and in Figure 2 for the experimental cigarettes. Noticable deviations are noted in five points in Figure 2. These correspond to cigarettes with filters of tobacco, Series T, Acrilan, or 50% ventilated, and to the sample of Marlboro blend with added CaCl<sub>2</sub>.

Duane C. Watson

DCW:rab

cc: F. E. Resnik  
R. B. Seligman  
R. A. Tamol  
J. E. Wickham

Should a summary be distributed  
outside of lab with CI TPM values?  
H<sub>2</sub>O values %

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TABLE I  
COMMERCIAL BRANDS

Sample	mg. TPM/Cigt.	mg. H <sub>2</sub> O/Cigt.	% H <sub>2</sub> O in TPM	Puff Count
Marlboro	22.6	23.5	2.2	10 9.4
Viceroy	24.0		2.2	9
Kent	19.1		1.9	10
Parliament	20.1		2.2	11
Winston	23.2 - 22.6		2.1	9 9.3
Waterford	24.7		2.3	9
Marlboro Menthol	25.5		2.6	10
Kool	24.6		2.5	10
Salem	21.9		2.1	9
P. M. Filter	21.8		2.4	11
Tareyton	19.8		2.0	10
Lark	23.8		3.0	13
Tempo	21.4		2.0	10
Life	15.9		1.6	10
Duke	9.1		1.2	10
Carlton	9.6		0.8	8
True	19.0		2.4	13

No. of Detn - ? 10

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TABLE II  
EXPERIMENTAL CIGARETTES

Code	Sample	mg. TPM/Cigt.	mg. H <sub>2</sub> O/Cigt.	% H <sub>2</sub> O in TPM	Puff Count
<u>Marlboro Blend - Paper Investigation</u>					
E6NP	45 sec phosphate	31.8	3.5	11	10.7
NQ	45 sec citrate	28.5	3.1	11	10.1
NR	20 sec phosphate	28.4	2.9	10	10.0
NT	20 sec citrate	25.3	2.7	11	8.7
NS	45 sec perforated	30.1	3.2	11	11.4
<u>Marlboro Blend - Filter Investigation</u>					
E6NV	CA 8/48,000	24.2	2.2	9	-
NW	CA 1.6/42,000	18.3	1.8	10	9.0
E6OF	CA with Triacetin	24.7	2.6	10	9.0
OE	CA w/o Triacetin	23.6	2.5	11	9.1
OP	CA with Carbowax	25.3	2.4	10	9.6
E6IT	Paper 1.6-2.0 RTD	21.5	1.7	8	9.0
IU	" 2.8-3.2 RTD	17.8	1.6	9	9.0
E6JB	" 2.2-2.4 RTD	24.5	2.1	9	8.8
E6OC	CA/40 mg PCB	26.2	3.0	11	-
OD	CA/100 mg PCB	23.9	2.8	12	-
D5UZ	Carbon Paper	21.0	1.8	8	8.7
D6NA	Tobacco Filter	29.7	2.3	8	9.3
M4JF	Series T	20.1	3.0	15	-
E6NZ	Acrilan	17.2	2.2	13	9.0
NX	30 mg Polyox	30.5	3.2	10	9.2
NY	120 mg Polyox	30.0	3.1	10	9.0
E6OA	50% Vent. Filter	16.1	1.2	8	9.8
OB	20% Vent. Filter	21.3	1.9	9	9.5
<u>Blend Investigation</u>					
E6NU	Marl + CaCl <sub>2</sub>	30.6	4.1	13	9.2
X5EC	Marlboro Monitor #8	19.4	1.6	8	8.0

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Figure 1. The effect of  $\text{H}_2\text{O}$  in TPM/CIGT on the commercial brands.

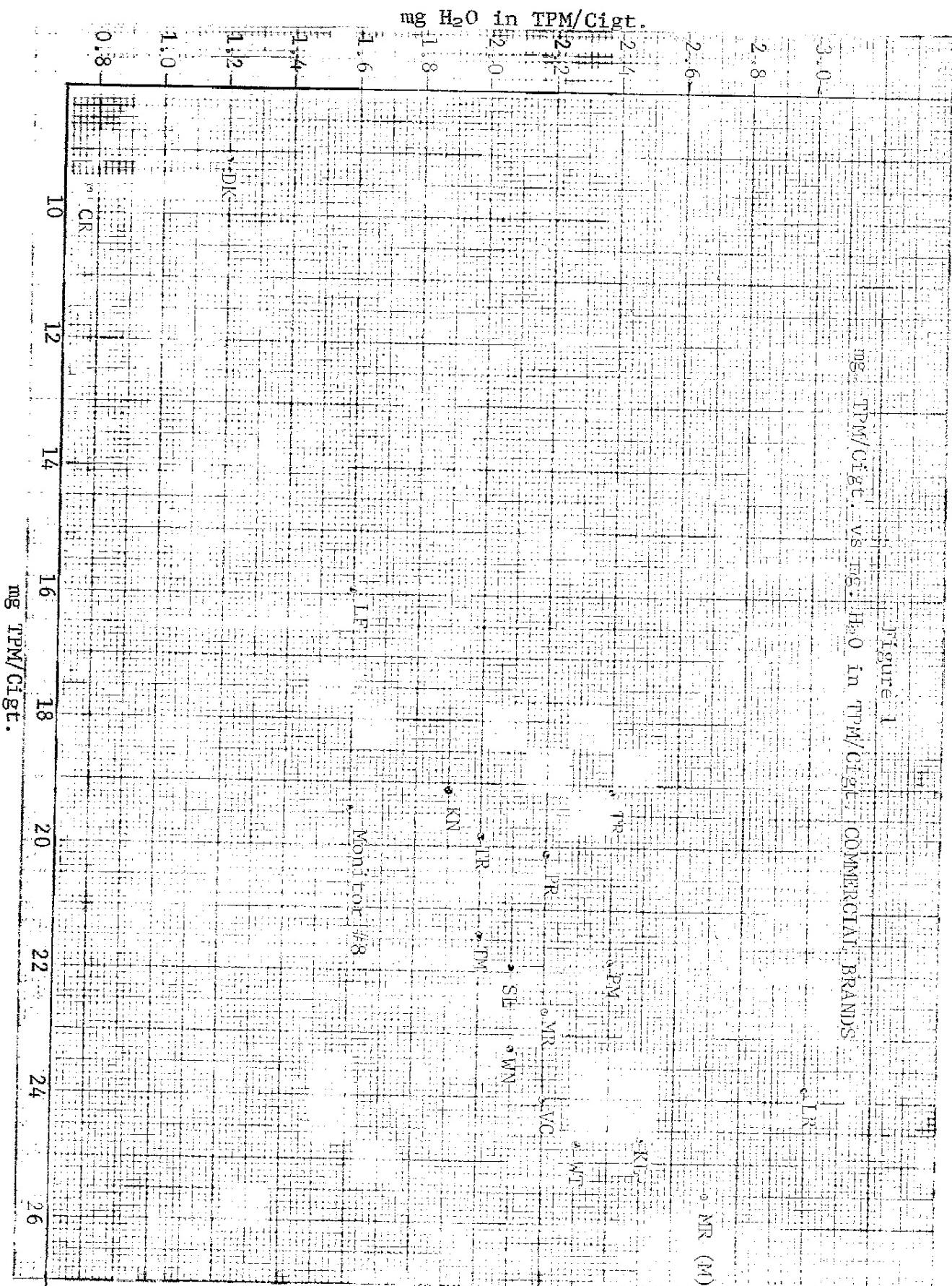


Figure 2

